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Assessment of Perianal Fistula – Clinical and MR Fistulogram

Authors

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Abstract

Objectives: The aim of our study to evaluate the diagnostic accuracy of magnetic resonance imaging *(MRI)* in perianal fistula in relation to the operative findings and classify the types of fistula. **Materials and Methods:** A Prospective observe of 40 individuals with suspected fistula in ano, primary or

recurrent, who had visited surgery department, Rajah Muthiah Medical College, Annamalai University, Chidambaram between October 2015 to September 2017 and the consequences have been analyzed.

Results: 1) Based on my study perianal fistula commonly seen in men of age group 41-50 years. 2) Grade IV fistula is common (25%) followed by Grade III (22.5%) and Grade II (17.5%) fistula.

Conclusion: Perianal fistula is more commonly seen in men of age group 41 to 50 years. Surprisingly, the most common type of Perianal fistula in our examine patients is Grade IV fistula (25%) followed by Grade III (22.5%) and Grade II (17.5%) fistulas. The delayed presentation with Grade IV fistula in our study population highlights the social taboos precluding the individuals from searching for timely medical help and thereby signifies importance of medical awareness. MRI is useful in a success treatment of perianal fistulae by reliable assessment of fistula anatomy and correct evaluation of the extent of the condition and its relation to the sphincters.

Keywords: Perianal fistula; Anal canal; Levator ani, MR fistulogram.

Introduction

A perianal fistula is an inflammatory condition that affects the area around the anal canal with a presence of a fistulous tract throughout the anal sphincters. Perianal fistula has a high tendency to recur due to undetected infection at surgery, causing enormous morbidity and often requiring repeated surgical treatments^[3].

Anatomy

The anal canal extends from the levator ani muscle cranially to the anal verge caudally and is surrounded by way of the internal and outside anal sphincters. The inner sphincter is the inferior extension of the internal circular muscle of the rectum and is responsible for resting involuntary anal continence. The external sphincter includes striated skeletal muscle, that is contiguous with every the levator ani and puborectalis muscle tissues superiorly and is responsible for voluntary continence ^[3].

The dentate line is an important landmark, as being the site of opening of the anal glands; it is taken into consideration the preliminary site of infection which initiates the fistula formation. The anal glands being deeply placed within the intersphincteric vicinity are claimed for abscess formation.

Normal MRI anatomy of the anal sphincter

The external anal sphincter (a striated muscle) is precisely visualized on MRI. It is hypotense on T1W, T2W, and fats-suppressed T2W image, and

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is bordered laterally by way of the fats in the ischioanal fossa.

The internal sphincter (a smooth muscle) is hypotense on T1W and T2W TSE images and is

distinctly hypotense on fats-suppressed T2W image (Figures A, B and C). It indicates enhancement on gadolinium T1W pictures



The coronal view depict the levatorani muscle (Figure A), the identity of that is crucial to differentiate supralevator from infralevator infections.

Classification of the perianal fistulae

The Classification of the perianal fistulae primarily based on surgical anatomy defined by using Parks et al.^[2] Morris et al.^[4] subsequently classified on the basis of radiologic anatomy on pelvic MRI, that's called the St. James' University Hospital

Classification of perianal fistula is break up as:

Grade 1: Simple linear intersphincteric fistula Grade 2: Intersphincteric fistula with intersphincteric abscess

Grade 3: Transsphincteric fistula

Grade 4: Transsphincteric fistula with abscess or secondary tract in the ischioanal or ischiorectal fossa.

Grade 5: Supralevator and extrasphincteric fistula Grade 5 fistulas characterized by different types of complex tracts via their extension above the sphincters.



Grade I Peri Anal Fistula



Grade 2 Horse Shoe Perianal Fistula



Grade 2 Perianal Fistula with Abscess



Grade 3 Perianal Fistula

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Grade 4 Perianal Fistula with Abscess



Grade 4 Perianal Fistula



Grade 5 Perianal Fistula

Materials and Methods

A Prospective study of 40 patients with suspected fistula in ano, primary or recurrent, from the surgery department, Rajah Muthiah Medical College, Annamalai University, Chidambaram between October 2015 to September 2017 and the results were analyzed.

Results

Table – 1: Age Distributions

Age (in years)	Number	Percentage
21-30	7	17.5
31-40	9	22.5
41-50	12	30
51-60	8	20
> 60	4	10
Total	40	100

In Table -1, age distribution of the patients is presented. The common age distribution is 41-50 years where 30% are observed and 31 to 40 years where 22.5% are observed.

Fig. 1 - Age Distributions



Table – 2: Gender Distribution

Gender	Number	Percentage
Male	35	87.5
Female	5	12.5
Total	40	100

Gender distribution of the study patients is presented in Table -2. The most of the patients are male (87.5%).

Fig. 2 - Gender Distribution



Table – 3: Mode of Presentation

Mode on Presentation	Number	Percentage
Primary	16	40
Recurrent	24	60
Total	40	100

The mode of presentation is primary for 40% whereas it is recurrent for 60%.

	Clini	ical Grading	MR	Grading	Per Operative Grading		
N %			Ν	%	Ν	%	
Normal	-	-	1	2.5%	-	-	
Grade I	9	22.5%	4	10%	6	15%	
Grade II	4	10%	8	20%	7	17.5%	
Grade III	14	35%	9	22.5%	9	22.5%	
Grade IV	6	15%	10	25%	10	25%	
Grade V	2	5%	5	12.5%	5	12.5%	
Abscess	2	5%	3	7.5%	3	7.5%	
Sinus	3	7.5%	-	-	-	-	
Total	40	100	40	100	40	100	

 Table – 4: Distribution of cases according to grades

The distribution of cases according to the grades is supplied in Table -4. The distribution in relation to clinical grading, MR grading and according tooperative grading is notified. As in keeping withop grading is advanced to other grades, it is taken into consideration for interpretations. About 25% are in grade IV classifications and which is the common type grading of fistula in our study group. Each of 17.5% and 22.5% accounts for grade II and grade III classifications. About 7.5% have grade V classifications.

Fig. 5: Distribution of cases according to grades



Mode of Presentation	Coll-is		Coll-Es		Coll-SL		Second Tra		Hor-Shoe		Total
	Present	Absent	Present	Absent	Present	Absent	Present	Absent	Present	Absent	
Primary	5	11	7	9	0	16	4	12	6	10	16
Recurrence	3	21	5	19	2	22	9	15	6	18	24
Total	8	32	12	28	2	38	13	27	12	28	40

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Discussion

Perianal fistulization is an unusual but essential situation of the gastrointestinal tract that results in increase morbidity. Perianal fistulas arise in about 10 per 1,00,000 men and women, with a twofold to fourfold male predominance. Al though anal fistulas were acknowledged to Hippocrates and have been defined during the centuries, they started to acquire special attention in the 19th century. In 1835, Frederick Salmon founded the Benevolent Dispensary for the Relief of the Poor Afflicted with Fistula, Piles, and Other Diseases of the Rectum and Lower Intestines the now international well-known St Mark's Hospital in London. Much of our knowledge of perianal fistulas comes from the work of surgeons at St Mark's Hospital: Salmon, who operated on Charles Dickens: Goodsall, who illustrated the course of fistulous tracks from the skin to the anus ⁽¹⁾; and Parks, whose category of fistulas with regards to anal anatomy is extensively used in surgery⁽²⁾.

Observation

About 60% of patients have recurrent mode of presentation. Recurrent instances have accompanied with more risk factor than primary instances.

Surprisingly, Grade IV fistula is common (25%) accompanied by Grade III (22.5%) and Grade II (17.5%) fistulas. It implies that observed individual in study group came for consultation with late presentation.

Conclusions

MRI is very beneficial in a diagnosis and treatment of perianal fistula because it's like a roadmap to illustrate accurately the anatomy of the perianal region.

Based on my study Perianal fistula is seen common in age group of 41-50 years. Surprisingly, the most common type is Grade IV fistula (25%) followed by Grade III (22.5%) and Grade II (17.5%) fistulas. The overdue presentation with Grade IV fistula in our study population highlights the social taboos precluding the people from seeking well timed clinical help and thereby signifies developing due clinical awareness.

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